Communicable Disease UPDATE

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Adult Hepatitis A and Hepatitis B Vaccination in Massachusetts Correctional Facilities

In the fall of 2007, the Massachusetts Department of Public Health (MDPH) received $606,296 in federal funding to purchase and offer 11,000 doses of combination hepatitis A and hepatitis B vaccine (Twinrix®) and 7,774 doses single antigen hepatitis B vaccine to a high risk population. Franny Elson, MPH and Dan Church, MPH, Bureau of Communicable Disease Control (BCDC) epidemiologists managed the project.

During 2008, the goal of the project is to vaccinate 9,000 inmates in the correctional system through a series of prison immunization clinics and to establish a system to vaccinate inmates upon admission. At least one dose of hepatitis A and hepatitis b will offered to high risk inmates within the participating 12 county correctional facilities and the Massachusetts Department of Correction. All facilities are scheduled to be fully implemented by June 30, 2008.

Mary Conant RN, BSN, Immunization Nurse Manager and Glynnis LaRosa RN, MPH, Senior Public Health Nursing Advisor, BCDC, took the lead in planning and implementing clinics at two county facilities. Training of BCDC staff from the Immunization, Epidemiology, Emergency Preparedness, TB Control, STD Programs and the HIV/AIDS Bureau. Staff were oriented to clinic operations and screening procedures, vaccination and the application of an incident command system (ICS). The project enabled BCDC to drill ICS and emergency dispensing site protocols (EDS).

During January and February clinics were conducted at the Hampden County Correctional Center. The first clinic administered one dose of Twinrix vaccine to almost 700 inmates. During the second clinic over 500 doses of vaccine were administered, 94% of which were second doses.

Clinics were also held at the Worcester County House of Correction. The first clinic administered one dose of Twinrix to almost 575 inmates. The second clinic administered one dose of Twinrix to almost 570 inmates, of which 65% were second doses.

This project has been very inspiring for the staff that participated. It allowed them to participate in a large scale public health initiative. We look forward to the potential of more similar projects in the future.

STDs on the Rise in 2007 in Massachusetts

New data for 2007 indicate that infectious syphilis, gonorrhea and chlamydia are on the rise in Massachusetts. These increases represent a new ten-year high of reported chlamydia and infectious syphilis cases. The increase in gonorrhea represents a reversal of a decline in reported cases since 2004.

Below is a description of the change in STD rates in Massachusetts, as well as highlights for certain sub-populations.

Infectious Syphilis

- From 2006 to 2007, there was an overall 20% increase in the incidence of infectious syphilis, from 219 to 264 cases.
- The male to female ratio of infectious syphilis in 2007 was 10:1, reflecting same-sex transmission among men who have sex with men (MSM).
- There were 179 infectious syphilis cases in 2007 in MSM and it is estimated that 45% of these cases were in HIV+ men.
- Infectious syphilis rates in MSM generally reflect the racial/ethnic distribution of the general population of Massachusetts.

Gonorrhea

- After three years of declining rates, there was an overall 12% increase from 2006 to 2007 in the number of reported *Neisseria gonorrhoeae* infections, from 2,436 to 2,724.
- Although the increase in gonorrhea was observed across all racial/ethnic groups, it is estimated that the incidence of gonorrhea is 26 times higher for blacks and 10 times higher for Hispanics when compared to whites. Access to health care is considered a contributing factor to disparities in STD rates.

Chlamydia

- There was an overall 8.3% increase in reporte

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Look Inside!

Epidemiology

Outbreak of Listeriosis linked to Pasteurized Dairy Products from a Local Dairy in Central Massachusetts, 2007

An outbreak of listeriosis was identified among five Massachusetts residents during 2007. Three elderly males (ages 75, 78 and 87) died, a 34 year-old woman had a stillbirth at 37 weeks gestation, and a 31 year-old woman delivered a premature, but healthy infant. Cases occurred from June to November, 2007. Four cases were identified by pulsed-field gel electrophoresis (PFGE) performed on *Listeria monocytogenes* isolates submitted by clinical laboratories. PFGE is a method for "DNA fingerprinting" of the bacterial isolate. These organisms had a pattern that was indistinguishable by PFGE, using two restriction enzymes. An epidemiologic investigation revealed that three of the five cases drank pasteurized milk products from a local, family-owned and operated dairy (Dairy A). A total of one environmental swab, one skim milk sample and seven flavored milk samples yielded *L. monocytogenes* with PFGE patterns that matched the outbreak strain pattern. Other environmental and milk samples were culture positive for other genotypes of *L. monocytogenes*. The results of the epidemiologic, environmental and laboratory investigation identified pasteurized, flavored and non-flavored milk produced by Dairy A as the source of the outbreak.

Reported sporadic cases of human listeriosis occur with an annual incidence of approximately 1 per 100,000 population in the United States. Outbreaks of listeriosis associated with pasteurized dairy products are rare. This represents only the third outbreak in the U.S. in the past 30 years in which pasteurized fluid milk was implicated in human disease with *L. monocytogenes*. Clinically apparent listeriosis usually presents in the most susceptible among the population: pregnant, immunocompromised and elderly individuals, and neonates.

This outbreak would have taken much longer to identify or would not have been identified at all without the use of PFGE. The effectiveness of PFGE in detecting outbreaks, however, is entirely dependent upon the consistent and timely submission of *all* relevant isolates from clinical laboratories to public health laboratories. This should serve as a reminder to all clinical partners to submit all clinical *Listeria* isolates to the William A. Hinton State Laboratory Institute for PFGE analysis.

Clinician-Based Hepatitis B Reporting

Each year, approximately 3,000 hepatitis B cases are reported to the Massachusetts Department of Public Health (MDPH). In the past the burden of follow-up on all these cases for local public health has been considerable. Timely identification and appropriate case management for acute and perinatal cases of hepatitis B is critical. However, the vast majority of reported cases are chronic hepatitis B virus infections and less public health intervention is required.

In 2007, MDPH conducted a survey which demonstrated that 97% of the 157 Massachusetts local boards of health and health departments that completed the survey favored a shift to health care provider reporting for chronic hepatitis B. Thus, on October 1, 2007, responsibility for completion of the chronic hepatitis B case report form was shifted to health care providers for most of the state (the Boston Public Health Commission follows-up on Boston residents).

Hepatitis B case finding is based on laboratory results. Once MDPH receives a laboratory report, a case report form is mailed to the health care provider who ordered the test. The form has been simplified into one page to minimize the burden of work. Information from the completed case report forms are evaluated for the potential of acute or perinatal infections, which account for approximately 200 cases each year. By shifting the responsibility for initial follow-up to clinicians who are familiar with the patients, MDPH hopes to collect more complete and timely information.

Local boards of health (LBOHs) continue to receive reports of newly identified HBV infections in residents of their city or town on a regular basis in a line list format. The line list includes all available demographic information such as name, address, date of birth; as well as laboratory results. LBOH responsibility for follow-up is now only needed if the case potentially meets the perinatal or acute HBV case definition. In these situations, MDPH will contact the LBOH.

Hib Vaccine Dose Administration

The Hib vaccine booster dose administered at age 12-15 months should be deferred except for specific high-risk groups as described below.

The Centers for Disease Control and Prevention (CDC) and the Massachusetts Department of Public Health (MDPH) request that providers use the basic interim recommendations for the appropriate use of Hib vaccine, currently in limited supply.

- Defer the routine Hib vaccine booster administered at age 12-15 months except for the following groups:
    - Children with asplenia, sickle cell disease, human immunodeficiency virus infection, and certain other immunodeficiency syndromes, and malignant neoplasms. They should continue to receive the full routinely recommended schedule, including the 12-15 month booster dose.
    - American Indian/Alaska Native children should also continue to receive the full routinely recommended schedule including the 12-15 month booster dose.

For more information and resources, please visit the following sites:
http://www.cdc.gov/vaccines/vac-gen/shortages/downloads/hib-flyer-022008.pdf
http://www.cdc.gov/mmwr/PDF/wk/mm5650.pdf
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5650a4.htm?s_cid=mm5650a4_e
http://www.cdc.gov/vaccines/vac-gen/shortages/default.htm#hib

Massachusetts does it again!

In March 2008, Massachusetts was honored at the 42nd Annual National Immunization Conference in Atlanta for achieving the highest childhood immunization rates in the nation for the third year in a row. In 2006, 84% of 19 – 36 month olds in the Commonwealth received at least 4 DTaP, 3 polio, 1 MMR, 3 Hib, 3 hepatitis B, and 1 varicella vaccine. The City of Boston was also recognized for achieving the highest childhood immunization rate (82%) among 24 urban areas included in the 2006 National Immunization Survey. Knowledgeable and committed pediatric care providers, the public health community and the state-supported universal childhood vaccine program have ensured that the children of Massachusetts enjoy comprehensive protection against vaccine-preventable diseases.

New Advances in Perinatal Case Management Produce Big Results

Since 1989, the Massachusetts Department of Public Health (MDPH) Division of Epidemiology and Immunization, has had a Perinatal Hepatitis B Program (PHBP). The purpose of the program is to identify pregnant women who are hepatitis B surface antigen (HBsAg) positive and ensure that their babies receive post-exposure prophylaxis at birth, complete the 3 dose hepatitis B vaccine series and receive post-vaccination screening. The Centers for Disease Control and Prevention (CDC) projects 542 HBsAg positive women will become pregnant each year in Massachusetts.

Over the years, the PHPB met or exceeded the average maternal rates for post exposure prophylaxis, completion of the 3-dose vaccine series and post-vaccination screening of the infants identified as being born to HBsAg-positive women. For 2005, Massachusetts was number one in the nation for hepatitis B birth dose compliance in all infants at 81%.

In 2006, the Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS), developed and implemented a web-based, Public Health Information Network (PHIN) compliant disease surveillance system that allows MDPH to share critical disease information within its divisions and with local public health, and transmit information in a timely manner to the CDC. Called MAVEN (Massachusetts Virtual Epidemiology Network), the system interfaces with the electronic laboratory reporting system, allowing for immediate access to laboratory data.

For the PHBP, these the implementation of MAVEN has resulted in a 25% increase in HBsAg-positive women of child bearing age being reported and followed-up, translating to an increase in the number of HBsAg-positive pregnant women being identified from 412 in 2005 to 528 in 2006 and 544 in 2007, for the first time exceeding the CDC point estimate for Massachusetts.

Since the institution of MAVEN, the increased timeliness of reports has identified women earlier in their pregnancies. Identifying women earlier in the pregnancy facilitates the identification of more household and sexual contacts, and reduces the risk for further transmission with vaccination. Boards of health are now being brought on to MAVEN. The PHBP will now work directly with local boards of health to identify household and sexual contacts utilizing the technical advantages of the web-based surveillance system for further prevention.

Using the Internet to Reach High-Risk Groups for STD Prevention

PART I: www.URHealthStyle.com

Advances in technology have facilitated dramatic shifts in the way young people communicate and access information. Computers, cell phones and text-messaging dominate many of their lives, creating a unique challenge for promoting public health messages and services. With the goal of preventing sexually-transmitted diseases (STDs) through school and community-based health services, the Massachusetts Department of Health (MDPH), in collaboration with the Massachusetts Department of Elementary and Secondary Education, took on this challenge in 2007 by actively seeking the input from young people in the development and design of an on-line website for teens: www.URHealthStyle.com.

Findings from focus groups with teen boys and girls in Boston and Worcester revealed their interest in learning more about comprehensive health services that are confidential, free and convenient through an online web resource site. The teens stressed that the website should tap into the themes of youth self-expression and self-identity that are consistent with the values of the MySpace generation. Other general recommendations included that the website be nonjudgmental in tone and non-stigmatizing for urban teenagers and communities of color.

The solution: www.URHealthStyle.com. Launched in May 2007, www.URHealthStyle.com has become a popular site for teens seeking health care services in their community. The secret behind the site's popularity: teens from Artists for Humanity, Inc., provided their design expertise in the look and feel of the site. Averaging about twenty-five visitors a day, there visitors can search for adolescent services on up to twenty topics, including: body image, acne, condom availability, HIV testing, hepatitis, substance abuse and pregnancy.

Information on STD services and condoms are routinely among the top three most popular searched topics on URHealthStyle.com. This is an important finding, as young people aged 15-24 represented 67% of the reported 16,557 chlamydia infections in Massachusetts in 2007.

To learn more about how you can partner with the MDPH on promoting www.URHealthStyle.com, send an e-mail to Thomas.Bertrand@state.ma.us

STDs on the Rise

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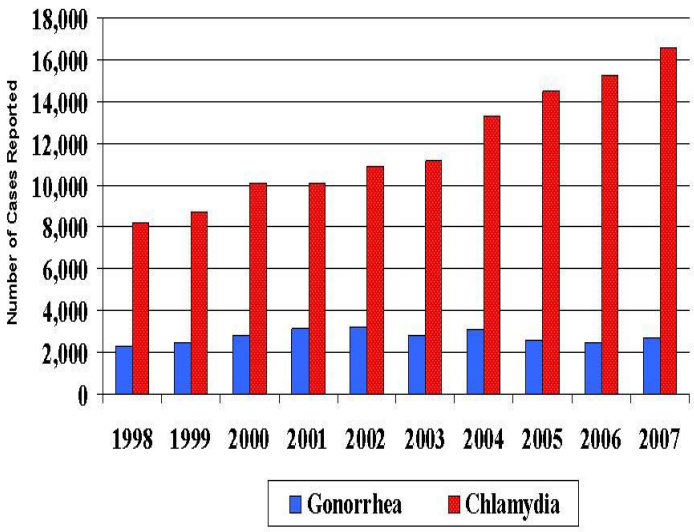
Chlamydia trachomatis infections from 2006 to 2007, from 15,283 to 16,557 cases.

- Both the black and Hispanic populations experienced a 10% increase in reported cases, while there was a 4.1% decline among whites.
- The female to male ratio for chlamydia remained unchanged at 3:1, reflecting higher chlamydia screening rates among females.
- Sixty-seven percent of the chlamydia cases were in people aged 15-24.

STD data are collected from case and laboratory reports that are submitted to the MDPH from health care providers and laboratories. A significant challenge for the MDPH is to improve race/ethnicity reporting on the case reports. MDPH site visits were being conducted at selected health care providers in 2007 to understand methods used to collect, document and routinely report race/ethnicity data and to improve reporting.

Gonorrhea and Chlamydia Infection Cases Massachusetts, 1998-2007



Refugee and Immigrant Health Program Community Health Workers: Bridging Services for Refugees and Public Health

The Refugee and Immigrant Health Program (RIHP) has long embraced a model that incorporates bilingual, bicultural community outreach educators (COEs), also referred to as community health workers (CHWs), to reach refugees and other recent arrivals with health and public health information.

The CHW staff plays a vital role in connecting refugees with public health services. Refugees have unique and often profound challenges to optimal health and well-being. Health status has too often been compromised by situations in their home countries, where an already weak public health infrastructure may have been weakened further by civil or military conflict. During years in camps, refugees may have been exposed to infectious diseases and additional stressors, such as inadequate food rations. Adding to the complexity of health status is the breadth of health beliefs, experiences, and approaches to illness, wellness and health care among refugees.

The RIHP CHW staff is 19 bilingual, bicultural individuals who speak 16 languages, including Amharic, Arabic, Burmese, Khmer, Kirundi, Krahn, Somali, Vietnamese and Russian. CHWs, and the RIHP regional coordinators who supervise them, are based at three regional offices, Tewksbury, Northampton and Boston. They work with health departments in their region, with the goal of assuring that refugees, public health nurses and clinics have support to address public health priorities.

CHWs provide education, interpreting, and support to refugees and providers to address health disparities by improving health and disease control outcomes. CHW activities include:

- Providing refugees with an initial orientation to health services;
- Staffing tuberculosis (TB) testing clinics at local health departments and TB clinics, providing language access, navigation support, appointment reminders, education and assistance; and providing directly observed therapy (DOT) for TB patients;
- Teaching refugees about specific health conditions (e.g., TB, hepatitis B, HIV infection, etc.), and treatment and follow-up in a culturally responsive manner;
- Assessing barriers to refugees' accessing public health services and development of strategies to address these barriers;
- Providing information on refugee cultures, health beliefs and backgrounds to improve provider knowledge and awareness of refugee patient needs.

The personal interactions between CHWs and refugee clients, as well as the commitment to community, are valued. A key objective of CHW work involves building relationships and developing trust. This is especially important for the RIHP because TB, hepatitis B, and other infectious diseases are sensitive topics associated with stigma and misinformation. While a shared cultural connection between CHW and client imparts an intrinsic advantage, the staff is increasingly working across cultures to respond to the diversity in new arrival populations. With support from RIHP, CHWs will develop new skills and knowledge to extend their services to new communities.

Refugee Arrivals: 2007

During January through December 2007, refugees from 52 countries resettled in Massachusetts. The number totaled 806 refugees and an additional 348 combined Cuban and Haitian entrants, asylees, and victims of a severe form of trafficking.

As anticipated, admission of two nationalities increased dramatically in 2007. First, the pace of Burmese U.S. resettlement from camps in Thailand (primarily ethnic Karen) and from Malaysia (primarily ethnic Chin) intensified. Second, by the end of 2007, many of the "1972 Burundians" in Tanzania had been resettled. The total number to be resettled through 2008 is estimated to be 6,000-8,000.

World Region	# Arrivals (# Countries)	Countries of origin for >40 refugees
Africa	518 (23 countries)	Burundi (142) Somalia (133) Liberia (69) Uganda (40)
Asia	218 (6 countries)	Burma (126) Vietnam (47)
Europe	200 (12 countries)	Moldova (48) Russia (43) Ukraine (41)
Latin America	148 (6 countries)	Haiti (97) Cuba (38)
Near East	70 (5 countries)	Iraq (48)
Total	1,154 (52 countries)	

WHAT IS STOP TB USA?

Background: Recent trends in the U.S. indicate a distinct slowing of the overall rate of decline in reported numbers of tuberculosis cases, combined with a decrease in public health resources, are raising concerns about the potential for tuberculosis resurgence. The number of tuberculosis cases among non U.S. born residents has not decreased over the past decade. News reports remind us that we are at risk for multidrug resistant tuberculosis occurring in other countries. Tuberculosis cannot be eliminated in the U.S. without addressing the disparities of tuberculosis that occurs among minority communities, non U.S. born residents and their U.S.-born children, and global neighbors. The WHO global STOP TB Partnership has gained momentum in recent years, with 82 countries now conducting advocacy efforts. The time to mobilize U.S. efforts for TB elimination and to implement a national tuberculosis elimination plan that is linked to the global STOP TB Partnership is here.

STOP TB USA is the outcome of a retreat on strategic planning by the National Coalition for the Elimination of Tuberculosis Elimination (NCET) that was held this past summer, with the support of the Division of Tuberculosis Elimination of the Centers for Disease Control (CDC). Sue Etkind, Director of the Massachusetts Division of Tuberculosis Prevention and Control, and a member of the NCET Steering Committee, was invited along with representatives from the American Thoracic Society, CDC, the National TB Controllers Association (NTCA), RESULTS, the STOP TB Partnership Secretariat at the World Health organization in Geneva, USAID, the Global Alliance for TB Drug Development, and the Aeras Global TB Vaccine Foundation. The meeting concluded with specific recommendations and a timeline designed to provide updated and more effective strategies for the US national TB elimination plan.

The NCET Steering Committee members readily approved the following:

1. Redefine the Coalition as a member of the global STOP TB Partnership.
2. Identify two workgroups: one to develop the STOP TB USA and launch activities and one to develop an updated TB elimination plan.
3. Present STOP TB USA and planned initiatives at the November 27-28, 2007 meeting of the Advisory Council for the Elimination of Tuberculosis (ACET).
4. Launch STOP TB USA at the International Union Against TB and Other Lung Diseases (IUALTD) North America Region Meeting in San Diego in February 2008 in partnership with STOP TB Canada and STOP TB Mexico.
5. Follow-up the initial launch with activities for World TB Day on or about March 24, 2008.
6. Presented a new plan for US TB Elimination based on input from a full complement of national and global partners by late May 2008.

STOP TB USA will be organized with the following objectives: 1) To serve as a channel of scientific and public health knowledge for the public and policy makers on the status of tuberculosis elimination globally, nationally and at state and local levels; 2) To educate the public and policy makers about the need for community public health activities for the elimination of tuberculosis, including development of new tools; 3) To provide a framework for increasing community participation in the national tuberculosis elimination effort, with emphasis on building awareness in and participation of “at risk” populations; 4) To serve as the U.S. partner within the global STOP TB Partnership and participate in STOP TB Partnership activities as appropriate.

Progress to date: A TB Elimination Plan Update Work-group has been formed. The Workgroup is reviewing the progress toward meeting the goal of national TB elimination in the United States (as recommended by the Institute of Medicine in 2000), identifying the barriers to meeting the TB elimination goals, and providing specific recommendations for action to achieve elimination of TB in the United States. The 5 writing groups have begun meetings, and a draft document is in progress. A launch work-group has also been at work to support the launch of STOP TB USA. Logos have been developed and a website sponsored by the American Thoracic Society is also under construction.

STOP TB USA is open to all individuals and organizations and is committed to facilitating active participation by as many members and partners as possible as we revise and reinvigorate the US national plan for the elimination of tuberculosis.

You Be the Epi

You Be the Epi – Spring 2008

An 11-year-old girl, who moved to Massachusetts in February from another state and will be entering 7th grade, presents to her healthcare provider for a routine checkup and to receive immunizations for school. She is healthy and active in sports. Her records show that among the vaccines she has received are 5 doses of DTaP, 4 doses of Hib, 4 doses of polio, 3 doses of hepatitis B, 2 doses of MMR (measles, mumps and rubella), and 2 doses of hepatitis A, all appropriately timed. What immunizations should she receive today?

The Advisory Committee on Immunization (ACIP) has recently made the recommendations for a number of vaccines to be routinely administered to adolescents. The 11-12 year old routine health care visit is an optimal time to assess the immunization status for traditional and newly recommended vaccines, as well as compliance with seventh grade school entry requirements. In Massachusetts, the requirements are as follows: 3 doses Hepatitis B; 4 doses DTaP/DTP or > 3 doses Td, plus 1 Td booster; 2 doses of measles; 1 dose of mumps and rubella; and 1 dose of varicella if <13 years of age (2 doses if first dose given at ≥13 years of age). For all new, full-time secondary school and college residential students, 1 dose of meningococcal vaccine is required.

Td/Tdap Vaccine

She is due for a booster dose of Td, having received her last dose of DTaP at age 6 years. However, ACIP recommends a single dose of Tdap instead of Td to give protection against pertussis. Last year in Massachusetts, over 1200 cases of pertussis were reported, and typically, 90% of these cases are in adolescents and adults, with adolescents having the highest incidence of all age groups. Therefore, the Tdap is highly preferred and will fulfill the school requirement for Td.

Varicella Vaccine

Her mother describes her case of chickenpox at age 3 years as having very few lesions present and only a mild fever. Since this is not a typical presentation of the disease, and may have had another etiology, she should receive her first dose of varicella vaccine, which will fulfill the school requirement. A second dose has recently been recommended by the ACIP, but is not yet required. (Immunity testing is possible but not recommended, because it will necessitate another visit and another injection if she is not immune).

Human Papillomavirus Vaccine

The newly licensed human papillomavirus (HPV) vaccine covers types 16 and 18, which are responsible for 70% of cervical cancers and types 6 and 11, which cause 90% of genital warts. This highly effective vaccine, which is given in a series of 3 doses, is licensed for girls and women aged 9-26 years; therefore she can receive the first dose today.

Meningococcal Vaccine

Meningococcal disease, while rare, can be devastating. The incidence is highest in infants, declines in early childhood and increases during adolescence and early adulthood. The newest vaccine against this disease, MCV-4, which is licensed for ages 2 years and up, provides protection against 4 of the more common serotypes (A, C, Y and W-135) that circulate in the United States. While there currently isn't a school requirement for this vaccine for her (since she lives at home and attends the local school), the ACIP does recommend this vaccine for all persons aged 11-18 years.

Influenza Vaccine

Because it is the middle of influenza season, and there is a 4 month old baby at home, she is offered the flu vaccine and gladly accepts when she learns she can receive the intranasal spray! Influenza vaccine was recently recommended for all children aged 6 months through 18 years of age.

Vaccine Availability

The provider may use state-supplied varicella, Tdap, MCV-4 vaccines for her, as these vaccines are provided for her cohort. She may also receive state-supplied influenza vaccine because she is a household contact of a high risk individual, namely the younger sibling. However, the provider will need to use privately purchased HPV vaccine unless she is eligible for the federal entitlement program, Vaccines for Children (VFC). Those children that are eligible for the VFC program, and therefore should receive state-supplied vaccine include those that are enrolled in Medicaid, do not have health insurance, are American Indian (Native American) or Alaska Native, or are seen at federally qualified health centers. Information about the availability of state-supplied vaccine can be found at: http://www.mass.gov/dph/cdc/epii/imm/vac_management/childhood_vaccine_availability.pdf

Lastly, an important point for the clinician to note is that particularly in this age group, patients should be asked to wait the full 15 minutes in the office after the vaccinations in order to observe for syncope and related accidents!

References

United States 2008 Childhood Immunization Schedule: http://www.cdc.gov/vaccines/recs/schedules/child-schedule.htm#printable

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Current and past issues of CD Update are available online at: http://www.mass.gov/dph/cdc/update/comnews.htm

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MDPH, Bureau of Communicable Disease Control, Division of Tuberculosis Prevention and Control , Summary Statistics For the Year 2007

Tuberculosis - Massachusetts

In 2007, 224 cases (case rate 3.53) of active tuberculosis (TB) were reported to and verified by the Massachusetts Department of Public Health, Division of TB Prevention and Control. Following a period of steady TB case rate, TB cases declined in 2007 by 14%. For the first time, Massachusetts achieved the TB case rate objective of 3.5 set forth by the Centers for Disease Control and Prevention (CDC).

Drug Resistance

In 2007, 159 (71%) of the 224 TB cases were bacteriologically confirmed by positive culture for Mycobacterium tuberculosis.

Of the 159 bacteriologically confirmed cases, drug susceptibility was performed for 159 (100%) of the isolates. Twenty-four isolates (15%) were resistant to one or more anti-tuberculosis drugs. Isolates from 12 (50% of 24 cases, 8% of 159 cases) were resistant to isoniazid (INH) either alone or in combination with other agents. In 2007, the rate of drug resistance was 15%

In 2007, there was 1 MDR-TB cases (defined as resistance to at least INH and rifampin (RIF)), and no XDR-TB cases (defined as an MDR-TB case with additional resistance to any fluroquinolone and at least one injectable second-line drug, such as amikacin, kanamycin or capreomycin).

Race / Ethnicity

Persons in minority groups composed 79% of the TB cases in 2007. For blacks, the case rate has declined 61% from 48.1 in 1991 to 20.1 in 2007. Although Asians continue to have a much higher case rate than any other group (case rate 30.3 in 2007), the case rates for Asians have declined 18% since 2004.

Higher Risk Groups

Non-U.S. born (persons born outside the United States and its territories): Among the 166 non-U.S. born persons with TB in 2007, those from 11 countries account for 60% of TB cases. China and India each accounted for 18 cases (11%) followed by Haiti - 12 cases (7%), Vietnam -11 cases (7%), Cambodia -7 cases (4%), Portugal - 7 cases (5%), Guatemala - 6 cases (4%), Kenya - 6 cases (4%). Dominican Republic, Ethiopia and Liberia each accounted for 5 cases (3%). The remaining 66 cases (40%) were in people from 37 different countries. Between 1993 and 2007, 50% of TB cases in persons born outside the United States and its territories were diagnosed within 5 years of arrival to the US.

Homeless: Of the 224 cases of TB reported in 2007, 9 cases (4%, case rate 28.0 per 100,000) were reported to have been homeless. Among the 9 homeless cases, 7 (78%) were reported from the City of Boston.

Incarcerated: In 2006, 10 cases (4%, case rate 41.5) of TB were diagnosed in either state or county correctional facilities. In 2007, 4 cases (2%, case rate 16.6) were diagnosed in correctional facilities

HIV co-infected: Preliminary data indicates that 16 cases of TB cases (7%) in 2007, were also co-infected with HIV – a rate similar to previous years.

Children: In 2007, 12 TB cases (5%, case rate 1.0) were in children <15 years of age, of which 10 (83%) were children of minority communities. The case rate among minority children in 2007 was 3.6.

Despite an overall decline of TB cases in 2007, the number of children with TB increase by 50%.

Note: All case rates are per 100,000

Characteristics of TB Cases 2007 (N=224)	
Demographics # %	
Sex	
Male	129 (58%)
Female	95 (42%)
Race Ethnicity	
White, non-Hispanic	47 (21%)
Black, non-Hispanic	69 (31%)
Hispanic	35 (16%)
Asian	73 (32%)
Place of Birth	
US-Born	58 (26%)
Non US Born	166 (74%)
Age (years)	
<5	4 (2%)
5-14	8 (4%)
15-24	26 (11%)
25-44	72 (32%)
45-64	73 (34%)
65+	39 (17%)
Clinical Presentation	
Primary Site of Disease	
Pulmonary	151 (67%)
Extra pulmonary	73 (33%)
Chest X-Ray Results (pulmonary involved cases)	
Cavitary Disease	37 (21%)
Non-cavitary Disease, TB	138 (77%)
Non-cavitary Disease, not TB	2 (1%)
Normal	2 (1%)
Not Done	0
High Risk Groups+	
Non-U.S. Born	166 (74%)
Children < 15 Yrs.	12 (5%)
Prison/jail	4 (2%)
Homeless	9 (4%)
Substance Abuse*	20 (9%)
HIV positive**	16 (7%)
+Not mutually exclusive groups	
** Excessive Alcohol, Injecting and/or non-injecting drug abuse*	
*** Preliminary data*	
Drug Resistance (N=159 Bacteriologically Confirmed Cases)	
Pattern	
Resistance to at least 1drug	24 (15%)
Resistance to at least INH Resistance to at least INH + RIF *(MDR-TB)*	12 (8%) 1 (<1%)